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Linda S. Cordell, 1976, pp. 83-86

in:

Vermejo Park, Ewing, R. C.; Kues, B. S.; [eds.], New Mexico Geological Society 27th Annual Fall Field Conference Guidebook, 306 p.

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THE FOLSOM SITE IN RETROSPECT

LINDA S. CORDELL

Department of Anthropology
University of New Mexico
Albuquerque, New Mexico 87131

INTRODUCTION

During the summer of 1926, a field crew from the Colorado Museum of Natural History (now the Denver Museum of Natural History), under the supervision of Frank M. Figgens, son of the Curator, J. D. Figgens, excavated two "arrowheads" that were associated with an extinct bison. The find was made east of Raton, just eight miles northwest of Folsom, New Mexico, 8 to 12 ft down a bank of Wild Horse Arroyo, an intermittent tributary of the Cimarron River (Figgens, 1927). After two more seasons of excavation at the site by the Colorado Museum of Natural History and the American Museum of Natural History, a total of 19 distinctive projectile points and the remains of 23 bison had been removed (Wormington, 1957). In his report on the geology and paleontology of the Folsom site, Harold J. Cook (1927) noted that the single bison he examined seemed closely related to *Bison occidentalis* in being larger than modern bison and that "while it is premature to express an opinion as to the exact age of these beds on present evidence ... the writer is of the opinion that this will prove to be a late Pleistocene deposit" (Cook, 1927, p. 244). Presently the bison is classified as *Bison antiquus*. The "arrowheads" first described by Figgens (1927) are now considered the most diagnostic artifact of the Folsom complex, an assemblage of stone tools which are the tangible remains of the best known Paleo-Indian (Late Pleistocene American Indian) culture. Folsom sites have been excavated in Arizona, Colorado, Montana, Texas and Wyoming as well as in New Mexico. Radiocarbon dates presently available assign Folsom an age of about 10,300 years B.P. (Judge, in press).

The Folsom site holds a deservedly important place in the history of American archeology; however, the site is also famous for the scientific controversy concerning its antiquity. Until the discovery at Folsom, most professional archeologists refused to acknowledge that North America had been inhabited prior to 5,000 B.P. (Agogino and Rovener, 1964; Hillerman, 1971; Stuckenrath, 1964). The Folsom site with its undeniably man-made tools in clear association with Pleistocene bison proved to be a bombshell to anthropologists. The site had to be examined and verified by skeptical archeologists. It was unfortunate that during the first season two point fragments were found in loose fill out of context, and a third fragment, although in matrix surrounding a bison rib, was removed to the laboratory at Denver where its original placement could not be proved. Figgens was annoyed when the first season's results were not generally accepted by archeologists, and during the 1927 season, Figgens was determined to find irrefutable evidence. Fortunately, in that year, when a point was found imbedded in a matrix associated with bison ribs, all work ceased and telegrams were sent to notable archeologists inviting them to examine the find *in situ*. Among those who responded and were convinced were Frank H. H. Roberts, Jr., Alfred V. Kidder and Earl Morris (Wormington, 1957).

At that time, before the advent of radiocarbon dating or the routine use of precise stratigraphic control, finds of great

antiquity were extremely difficult to conclusively prove. This is still a difficult task today. It is worthwhile to evaluate first, the contention that before the discovery at Folsom most archeologists allowed no more than a few thousand years for the presence of man in the Americas; second, the problems encountered in demonstrating great antiquity for any archeological find; and finally, the significance of the Folsom site.

ORIGIN AND AGE OF PALEO-INDIAN CULTURES

The "problem" of the identity and origin of the American Indian, arose as soon as the early European explorers realized that Columbus had not reached Asia. As Bordes (1968) has pointed out, the intellectual consequences of discovering a previously unknown, inhabited land mass is virtually unique in human experience and will not be repeated unless intelligent life is found on other planets. It was not until the Papal Bull of Paul III in 1537 that American Indians were officially recognized as human. In late 19th century Europe the young science of anthropology was attempting to trace the history of man and his institutions. In the United States, anthropologists of the same period were concerned specifically with the history and culture of the American Indians. By the time this endeavor had begun, there had been two centuries of speculation, and numerous bizarre notions concerning Indian origins were held. These included ideas that the Indians were descendants of the Canaanites, or of Magog, or the "Ten Lost Tribes of Israel," or that they had evolved independently in the Americas, or that they had come from Atlantis, Egypt, Ethiopia, Ireland, Phoenicia, Polynesia or Wales (Hrdlicka, 1912; Wauchope, 1962; Willey and Sabloff, 1974).

On December 27, 1911 a joint session of the American Anthropological Association and Section H of the American Association for the Advancement of Science was held in Washington, D.C. to discuss the origin and antiquity of man in the New World (Fewkes, 1912). It is, or should be, humbling that so much of the reported discussion was completely modern in tone. The evidence of physical anthropology, studies largely of the physiology of American Indians, was reported by Ales Hrdlicka (1912), one of the greatest opponents to a long duration for Indian populations in North America. Hrdlicka noted that all available evidence indicated that aboriginal Americans are essentially one race, despite local variability, and that they are most closely related to peoples of Asia. Today's views are the same. Hrdlicka maintained that northeast Asia was the most likely route taken by man entering the Americas; and although there might have been later small increments of people from Polynesia or even northern Europe (the Vikings), these would not have been of sufficient magnitude to affect the physical type of the Indians. This is the currently accepted theory. With respect to the antiquity of man in the New World, Hrdlicka cautiously gave no absolute estimate. He did maintain that man entered the Americas after evolution into modern form and after racial differentiation.

Evidence for "pre-modern" human beings, such as the Neanderthals, venturing into the Americas is still lacking. Racial variation is seen as a continuing process, and there is dispute as to whether Asiatic Mongoloids had become differentiated at the time man crossed into the New World or whether the first migrants were of "proto-Mongoloid" stock (Birdsell, 1951; Stewart, 1960). The essential elements of Hrdlicka's ideas proposed fifteen years before the Folsom discovery are still sound.

Why then is Hrdlicka so often pictured as the uncompromising villain, standing against all progress in ascertaining an early date for the first Americans? From the time Boucher de Perthe's Paleolithic tools were accepted as genuine, ca. 1860 (Willey and Sabloff, 1974), American scientists had been looking for equally crude and ancient remains on this continent. Such artifacts were eventually found, but these were unfinished items. At the 1911 joint session Dall (1912) suggested on the basis of his observations of Siberian and Alaskan vertebrates, that a land bridge at the Bering Strait had not existed since the Tertiary. A questionable claim that the American Indian was established on this continent before the Pleistocene had in fact been made. It was during this time of claims of greatly exaggerated antiquity that Hrdlicka became a self-appointed watchdog, scrutinizing and negatively evaluating these discoveries. Hrdlicka (1926) expressed skepticism about crude tools being ancient, realizing that they were probably unfinished artifacts. He was also concerned by the fact that humans bury their dead and that skeletal remains associated with very early deposits may have been introduced after deposition. Finally, as a physical anthropologist, he was aware that no evidence for pre-modern man in the Americas existed. In addition to this healthy skepticism, Hrdlicka was a stubborn man, and having made up his mind that man was not in the New World during the Pleistocene, consistently rejected finds which have since proved to be very old, the so-called Minnesota Man reported by Jenks (1936) and the Natchez Pelvis reported by Wilson (1895). As Wilmsen (1965) has stated, the ranks of professional anthropologists were few and Hrdlicka so prestigious and "increasingly personal" in his attacks against those who would disagree with him, that few men wished to risk their reputations by going against his dicta. Still, at least on one occasion in print, and before the Folsom discovery, Hrdlicka mentioned that the origin of man in America could be placed between "ten or at most fifteen thousand years ago" (Hrdlicka, 1923, quoted in Mason, 1966). This was a prescient statement.

With respect to the opinions of professional archeologists about the antiquity of American Indians before the Folsom discovery, Mason (1966) has noted that, with one exception, they certainly allowed more than 5,000 years. H. J. Spinden, the single dissident, apparently greatly surprised his colleagues by claiming recent dates at a national meeting in 1936 and later, in print (Mason, 1966). Generally men like William H. Holmes, a dominant figure in American anthropology at the turn of the century were simply cautious. Holmes (1890) stated that so-called "paleoliths" were rejected or unfinished artifacts of more recent craftsmen, and presumably Holmes approached all claims of great antiquity with skepticism. Although the data were certainly shaky by modern standards, numerous finds of evidence of Pleistocene man in America had been made and published before 1927 (Cotter, 1966; Mason, 1966). Early investigators working before Lyell, Darwin and

Boucher de Perthes had no perspective on the temporal framework of man's evolution. Once the antiquity of man in Europe was demonstrated, enthusiasm for finding early man in the Americas has waxed and waned periodically (Krieger, 1964; Haynes, 1971; Judge, in press). Perhaps one of the reasons that Hrdlicka and Holmes seem so rational today is that most archeologists working with Paleo-Indian data are wary of accepting evidence of man in the New World beyond about 11,500 B.P. Haynes (1971) has indicated only very guarded acceptance of finds which may precede this date.

Archeologists are faced with a plethora of problems in demonstrating antiquity beyond that of known and dated complexes. Radiocarbon dating is invaluable, but not unambiguous. Finds must show clear datable evidence of the presence of man, either skeletal remains or undeniable artifacts. Surface finds (exposed through erosion) are inadequate. Aeolian deflation often leaves artifacts on non-contemporary, usually older, soil horizons. Materials collected from the surface are usually stone tools; exposed bone and charcoal are rarely preserved. Stone tools, unless of known types which have been accurately dated elsewhere, cannot be dated by isotopic techniques. Excavation provides the only way of recovering artifacts in their original archeological and geological context. Yet there are problems with even well controlled excavation. Human skeletal remains, certain proof of the presence of man, are rarely found. Their absence is related to problems of preservation and to the fact that cemeteries are relatively recent innovations not generally used by hunters and gatherers. When human skeletons are found, most archeologists are reluctant to have large portions of them destroyed to obtain enough collagen for a radiocarbon date.

Excavation often yields stone artifacts, and these must be clearly distinguished from "eofacts," stones modified by natural forces. In the case of projectile points, or other highly specialized tools, the distinction between artifact and eofact is clear but some archeologists believe that crude chopping tools may have been the basic item of equipment of Pleistocene Americans (Krieger, 1964). Unfortunately, natural agents can sometimes produce remarkably convincing chopping tools. A rather good example of the problem is found in the Calico Hills site near Yermo, California. Here the "artifacts" consist of fractured chert cobbles, but these cobbles originated 3 miles from the site and were washed there along with large igneous boulders, which could have caused the fractures (Haynes, 1969).

In order to demonstrate great antiquity of man in the Americas, the archeologist must have human skeletal material, undisputed artifacts or a feature which may be dated (such as a hearth containing charcoal). These must be in their original depositional context in undisturbed deposits where their stratigraphic position and minimum age are determined. These are minimal criteria (Haynes, 1969).

The Folsom site is justifiably a historical landmark in American archeology because for the first time all of these criteria were met by a Pleistocene site. The fact that numerous professional archeologists had the opportunity to view the finds *in situ* led to its immediate acceptance. The Folsom site provided the necessary evidence of man's antiquity in the Americas, and anthropologists could deal with a temporal framework of sufficient length to allow indigenous development of the diverse languages, customs and adaptations of the American Indian.

RECENT DEVELOPMENTS

It has been 50 years since the first season of work at Folsom. During this time, a great deal has been learned about early man in America, and new research is continuing. Many finds of Folsom artifacts, and those of other ancient cultures, were made following the Folsom discovery. For about 20 years after the Folsom find, most archeological attention was devoted to establishing the age of these remains. It is now well established that man was in the Americas prior to Folsom, but the earliest complex is still in doubt though there are many contenders. The Clovis complex, characterized by fairly large fluted points and mammoth remains, has repeatedly been dated to 11,000 B.P. No distinctive complexes older than this are entirely accepted, although finds from the Old Crow Valley, Yukon Territory (Irving and Harrington, 1973); Sandia Cave, New Mexico (Hibben, 1955); Medicine Hat, Alberta (Stalker and Churcher, 1970), and Ayacucho, Peru (MacNeish, 1969) are among those that may be older.

The Folsom complex immediately succeeded the Clovis complex in most areas. Following Folsom, about 10,000 B.P., diverse and distinctive projectile point types appear and characterize various complexes on the central U.S. Plains and adjacent areas. Plainview, Agate Basin and Hell Gap complexes are the best known of these point types. The men who used them were still hunters of big game and gatherers of vegetal food. About 9,000 or 9,500 B.P., following a slight gap in available radiocarbon dates, the sequence of big game hunters continues with Alberta, Cody and Frederick complexes (Judge, in press), each characterized by a specific projectile point type or types. The era of big game hunting came to an end at about 7,000 B.P. with the beginning of the Archaic culture, which is characterized by reliance on hunting smaller mammals (deer, elk, antelope and rabbits) and intensive utilization of wild plant food. In the Southwest, the Archaic was a prelude to the acceptance of cultigens from Mexico and sedentary village life.

There has been increasing interest in describing and explaining changes in the settlement technology of the earliest Americans (Judge and Dawson 1972; Judge, 1973). The changes from Clovis to Folsom to Plainview involved more than simply changes in styles of projectile points. Settlement technology refers to "the primary medium of articulation between a cultural system and its environment, a concept comprising, in effect, all the cultural and environmental variables that a group of people consider relevant in determining the actual location of a habitation site or area of special activity" (Judge and Dawson, 1972, p. 212). Temporal changes in the locations of settlements with respect to resources reflect changes in the natural environment at the end of the Pleistocene and in man's adaptive strategies. Judge and Dawson (1972) demonstrate that in the Rio Grande Valley there are significant changes between Folsom and Cody time in the location of sites with respect to proximity to water, type of water, type of water source and location and direction of hunting areas. Although these changes seem logically to be the consequence of increasing aridity, detailed paleoenvironmental reconstructions have not been completed.

There has also been a renewed interest in the lithic technology of the Paleo-Indians (Wilmsen, 1974; Frison, 1974) which has involved experimental manufacture and use of comparable tools and subsequent studies of their wear and breakage patterns. Such experimental exercises give a better

understanding of tasks for which stone tools were created and finally discarded. Source materials used in the manufacture of Clovis and Folsom projectile points have indicated significant differences that suggest more constrained routes of travel during Folsom time than during Clovis time (Broilo, 1971). This may be related to increasing aridity and the consequent necessity of traveling with game animals which would be confined close to diminishing sources of permanent water.

Certainly, in the fifty years since the first season at the Folsom site, our knowledge of the Paleo-Indian period has greatly increased. Paleo-Indian archeology remains an exciting field of study, and though the focus has shifted from the problems of establishing great antiquity for the American Indian which challenged the early workers, many of these pioneers would find the current interests equally absorbing.

REFERENCES

- Agogino, G. A., and Rovner, I., 1964, Paleo-Indian traditions: a current evaluation: *Archeology*, v. 17, p. 237-41.
- Birdsell, J. B., 1951, The problem of the early peopling of the Americas as viewed from Asia, in Laughlin, W. S., ed., *Papers on the physical anthropology of the American Indian*: New York, The Viking Fund, Inc., p. 1-68.
- Bordes, F., 1968, *The old stone age*: New York, McGraw-Hill, 255 p.
- Broilo, F., 1971, An investigation of surface collected Clovis, Folsom, and Midland projectile points from Blackwater Draw and adjacent localities [M.S. thesis]: Portales, Eastern New Mexico University, 90 p.
- Cook, H. S., 1927, New geological and paleontological evidence bearing on the antiquity of mankind in America: *Natural History*, v. 27, p. 240-247.
- Cotter, J. L., 1966, Pre-Folsom estimates of the age of man in America comments: *Am. Anthropologist*, v. 68, p. 196-198.
- Dall, W. H., 1912, On the geological aspects of the possible human immigration between Asia and America: *Am. Anthropologist*, v. 14, p. 14-17.
- Fewkes, J. W., 1912, The problems of the unity or plurality and the probable place of origin of the American aboriginals: *Am. Anthropologist*, v. 14, p. 1-13.
- Figgins, J. D., 1927, The antiquity of man in America: *Natural History*, v. 27, p. 229-239.
- Frison, G. C., ed., 1974, *The Casper site: a Hell Gap bison kill on the high plains*: New York, Academic Press, 266 p.
- Haynes, C. V., Jr., 1969, The earliest Americans: *Science*, v. 166, p. 709-715.
- 1971, Time, environment, and early man: *Arctic Anthropology*, v. 8, p. 3-14.
- Hibben, F. C. H., 1955, Specimens from Sandia Cave and their possible significance: *Science*, v. 122, p. 688-689.
- Hillerman, T., 1971, The Czech that bounced or: how Folsom was saved to history: *New Mexico Magazine*, v. 50, p. 25-27.
- Holmes, W. H., 1890, A quarry workshop of the flake-stone implement makers in the District of Columbia: *Am. Anthropologist*, v. 3, p. 5-12.
- Hrdlicka, A., 1912, Historical notes: *Am. Anthropologist*, v. 14, p. 5-12.
- 1923, Origin and antiquity of the American Indian: *Smithsonian Inst. Ann. Report*, 1923, p. 481-494.
- 1926, The race and antiquity of the American Indian: *Scientific American*, v. 135, p. 7-10.
- 1937, The Minnesota "man": *Am. Jour. Phys. Anthropology*, v. 1, p. 175-199.
- Irving, W. N., and Harrington, C. R., 1973, Upper Pleistocene radiocarbon-dated artifacts from the northern Yukon: *Science*, v. 179, p. 335-340.
- Jenks, A. E., 1936, *Pleistocene man in Minnesota: a fossil Homo sapiens*: Minneapolis, The University of Minnesota Press, 197 p.
- Judge, W. J., 1973, *The PaleoIndian occupation of the central Rio Grande valley*, New Mexico: Albuquerque, The University of New Mexico Press, 361 p.
- in press, *Early Man: Plains and Southwest*, an interpretative summary of the PaleoIndian occupation of the Plains and Southwest,

- in Sturtevant, W. C., ed., *Handbook of North American Indians*, 104 p.
- Judge, W. J., and Dawson, J., 1972, Paleolndian settlement technology in New Mexico: *Science*, v. 176, p. 1210-1216.
- Krieger, A. D., 1964, Early man in the New World, in Jennings, J. D., and Norbeck, E., eds. *Prehistoric man in the New World*: Chicago, The University of Chicago Press, p. 23-81.
- MacNeish, R. S., 1969, First annual report of the Ayacucho archaeological-botanical project: Andover, R. S. Peabody Foundation for Archaeology, Phillips Academy, 54 p.
- Mason, J. A., 1966, Pre-Folsom estimates of the age of man in America: *Am. Anthropologist*, v. 68, p. 193-196.
- Stalker, A. Mac S., and Churcher, C. S., 1970, Deposits near Medicine Hat, Alberta, Canada: composite section with notes on fauna and artifacts: Ottawa, Geological Survey of Canada, 68 p.
- Stuckenrath, R. S., 1964, The Debert site: *Expedition*, v. 7, p. 21-35.
- Stewart, T. D., 1960, A physical anthropologist's view of the peopling of the New World: *South Western Journal of Anthropology*, v. 16, p. 259-273.
- Wauchope, R., 1962, Lost tribes and sunken continents: myth and method in the study of American 'Indians': Chicago, The University of Chicago Press, 155 p.
- Willey, G. R., and Sabloff, J., 1974, *A history of American archaeology*: San Francisco, W. H. Freeman and Company, 252 p.
- Wilmsen, E. N., 1965, An outline of early man studies in the United States: *Am. Antiquity*, v. 31, p. 172-192.
- 1974, *Lindenmeier: a Pleistocene hunting society*: New York, Harper and Row, 126 p.
- Wilston, T., 1895, On the presence of fluorine as a test for the fossilization of animal bones: *Am. Naturalist*, v. 29, p. 301-317, 439-456, 719-725.
- Wormington, H. M., 1957, *Ancient man in North America*, 4th ed: Denver, Denver Museum of Natural History, Popular Series 4, 322 p.